

ABSTRACT

Improved methods and apparatus for completing a subterranean zone penetrated by a wellbore are provided. The improved methods basically comprise the steps of placing a sand screen (e.g., screens, screened pipes, perforated liners, prepacked screens, etc.) in the wellbore adjacent the zone to be completed, positioning an alternate flowpath comprised of a plurality of blank (non-perforated) tube segments which are open at both ends in the annulus between the sand screen and the wellbore, isolating the annulus between the screen and the wellbore in the zone, and injecting particulate material into the annulus between the sand screen and the wellbore and into the zone, whereby the particulate material is uniformly packed into the annulus between the sand screen and the zone. The multiple flow paths are provided via a series of blank tubes (without intermediate openings) with each tube extending only a portion of the length of the zone to be completed. The permeable pack of particulate material formed prevents the migration of formation fines and sand with fluids produced into the wellbore from the unconsolidated zone. If desired, a protective shroud comprised of a perforated liner can be concentrically mounted over the sand screen and the associated multiple flowpaths (e.g., blank tube segments) to protect and centralize the screen. The method is also applicable to placing gravel packs in a cased and perforated well drilled in the zone.